FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

April 2 to April 8, 2017 (Week 14)

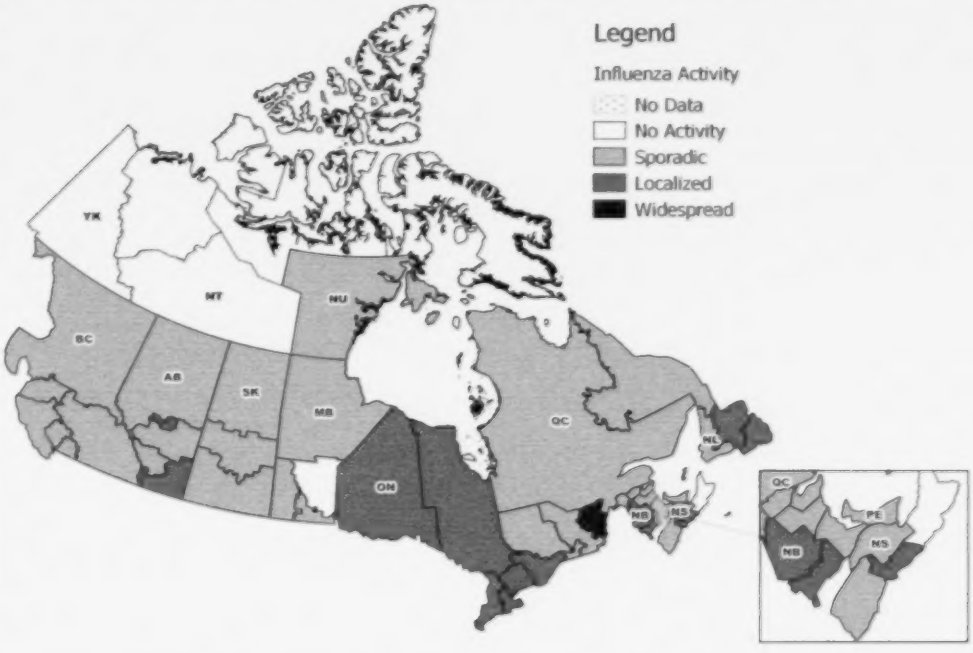
Overall Summary

- Overall, influenza activity is slowly declining in Canada.
- In week 14, influenza B accounted for a greater proportion of influenza laboratory detections, hospitalizations and outbreaks compared to the previous week.
- Influenza activity due to influenza B is slowly increasing but is low compared to the same time period in the previous two seasons.
- Influenza A activity is decreasing; however, influenza A continues to be the most common type of influenza affecting Canadians.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 14, seven regions across five provinces and territories reported no influenza or influenza-like illness activity. Sporadic influenza activity was reported in 30 regions across ten provinces and territories. Localized activity was reported in 15 regions across six provinces. One region in QC reported widespread activity in week 14. For more details on a specific region, click on the map.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 14

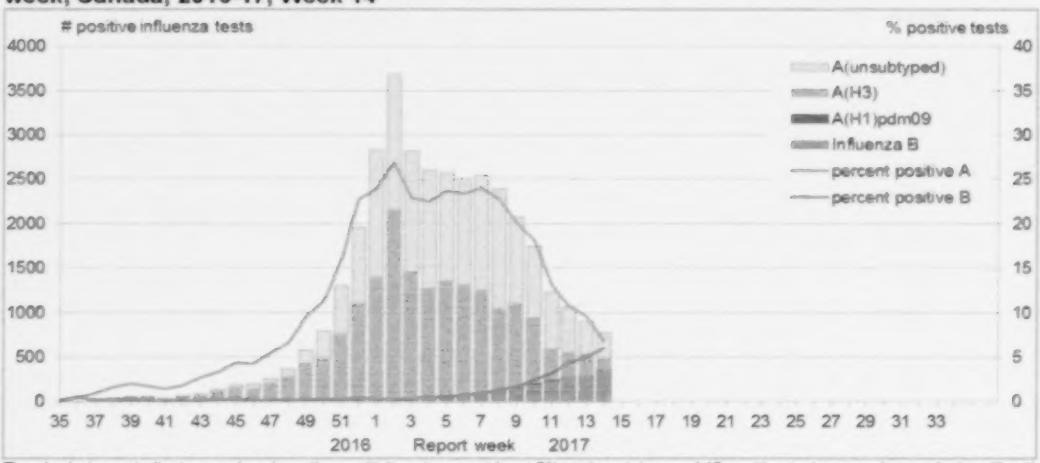


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 14, the number (1,159) and the percentage of tests positive for influenza (13%) decreased slightly from the previous week. Although declining, influenza A continues to account for the majority (67%) of detections. Influenza B detections have been steadily increasing since mid-February. Influenza B detections remain very low compared to the same time period in the previous two seasons. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

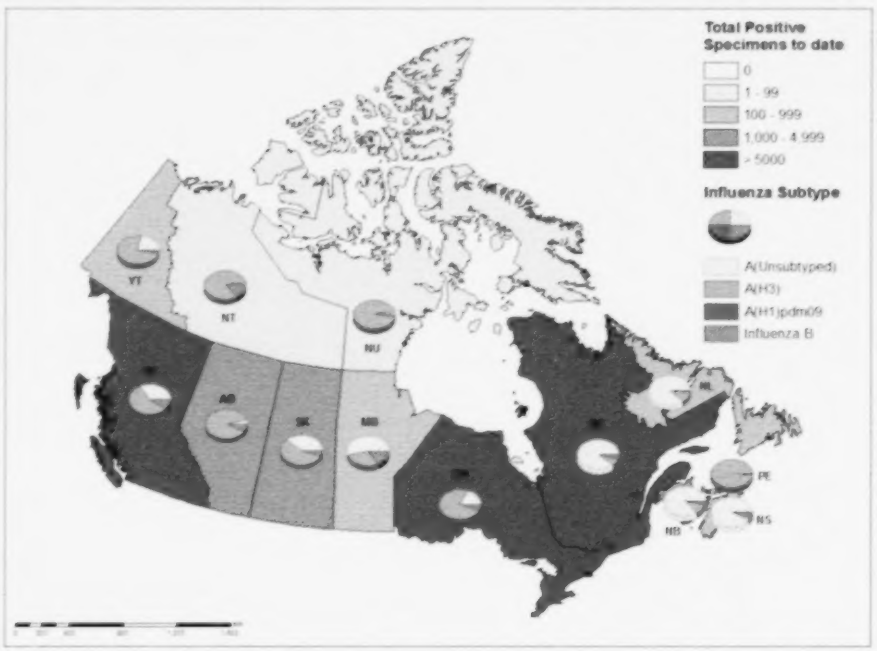
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 14



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 35,937 laboratory confirmed influenza detections have been reported, of which 94% have been influenza A. Influenza A(H3N2) is the most common subtype detected. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 14



To date this season, detailed information on age and type/subtype has been received for 24,608 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for half of the reported influenza cases. Among cases of influenza A(H3N2), adults aged 65+ represented 49% of cases, followed by adults aged 20-64 (34% of cases). Among cases of influenza B, adults aged 20-64 represented 41% of cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 14

Age groups (years)	Week (April 2, 2017 to April 8, 2017)					Cumulative (August 28, 2016 to April 8, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	<5	0	<5	<5	9	2158	12	819	1327	139	2297	9%
5-19	<5	0	<5	<5	20	2149	10	1069	1070	262	2411	10%
20-44	>5	0	5	<5	13	3348	22	1790	1536	266	3614	15%
45-64	16	0	10	6	27	3765	19	1930	1816	373	4138	17%
65+	39	0	17	22	31	11645	10	5372	6263	503	12148	49%
Total	73	0	37	36	100	23065	73	10980	12012	1543	24608	100%
Percentage[2]	42%	0%	51%	49%	58%	94%	0%	48%	52%	6%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x: Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

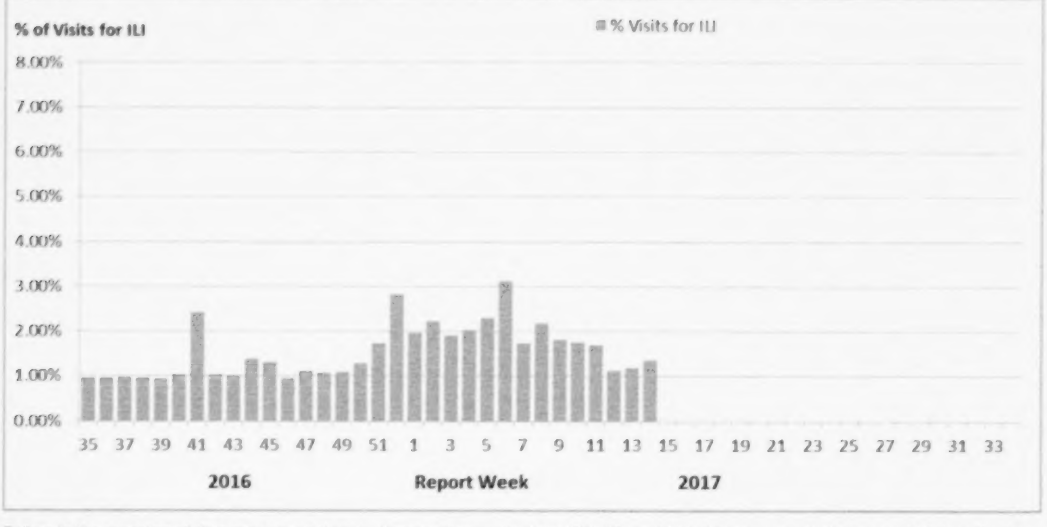
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 14, 1.4% of visits to healthcare professionals were due to influenza-like illness, an increase compared to the percentage of visits reported in week 13.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 14: 111



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

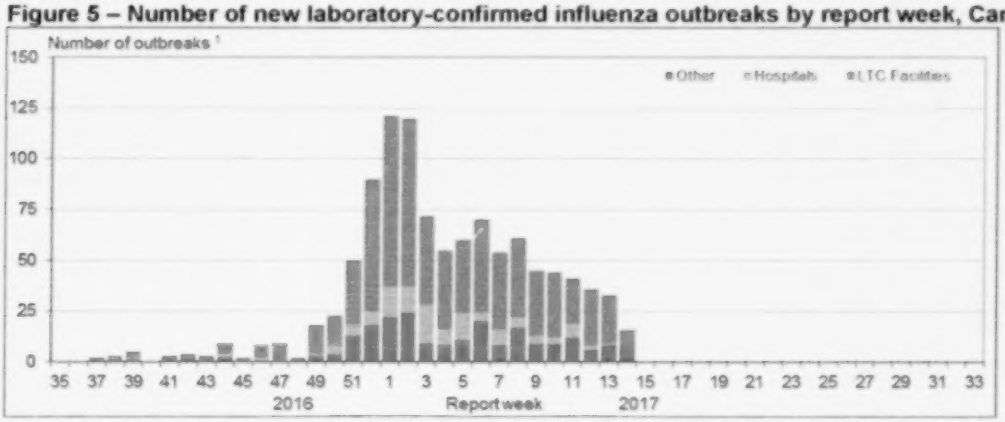
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 14, 16 laboratory confirmed influenza outbreaks were reported (17 fewer outbreaks than week 13). Of the outbreaks with known strains or subtypes: one was due to influenza A(H3N2), one was due to influenza A(UnS) and four were due to influenza B. All but one influenza B outbreak occurred in LTC facilities. An additional four outbreaks due to ILI were reported in schools.

To date this season, 1,083 outbreaks have been reported and the majority (67%) have occurred in LTC facilities. A total of 44 outbreaks (4%) due to influenza B have been reported. Compared to the same period in the most recent previous A(H3N2) predominant season (2014-15), 1,646 outbreaks were reported, of which 74% occurred in LTC facilities and 76 outbreaks (5%) were due to influenza B.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 14



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 14, 146 influenza-associated hospitalizations were reported by participating provinces and territories*, up from 142 reported in the previous week. Influenza A accounted for 57% of hospitalizations. The weekly percentage of influenza B associated hospitalizations has been steadily increasing since week 02. The largest proportion of hospitalizations were among adults aged 65+ years (66%). Seven intensive care unit (ICU) admissions and 11 deaths were reported in week 14.

To date this season, 5,766 hospitalizations have been reported, of which 94% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (3033/3055) were influenza A(H3N2). Adults 65+ accounted for 68% of the hospitalizations. A total of 227 ICU admissions and 325 deaths have been reported. The majority of deaths was reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 14

Age Groups (years)	Cumulative (August 28, 2016 to April 8, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	434	35	469 (8%)	15	7%	<5	x%
5-19	229	39	268 (5%)	14	6%	<5	x%
20-44	287	16	303 (5%)	22	10%	5	2%
45-64	726	61	787 (14%)	65	29%	34	10%
65+	3759	180	3939 (68%)	111	49%	283	87%
Total	5435	331	5766 (100%)	227	101%	325	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 14, 15 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, which is similar to the number of cases reported in week 13. Influenza B accounted for the majority of cases (80%). The largest proportion of the hospitalizations in week 14 occurred in children 5-9 years of age (38%). The number of weekly hospitalizations reported since week 05 has been below the six year average for the same time period (Figure 7).

To date this season, 499 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 39% of hospitalizations and influenza A accounted for 87% of the reported hospitalizations. Among the 64 hospitalizations due to influenza B, 31 (48%) were in children over the age of 5 years. In comparison, children over the age of 5 years accounted for 33% of influenza A hospitalizations. Additionally, 94 intensive care unit (ICU) admissions have been reported. Children aged 5-9 years and 10-16 years each accounted for 30% of ICU cases. A total of 49 ICU cases reported at least one underlying condition or comorbidity. Less than five deaths have been reported this season.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 14

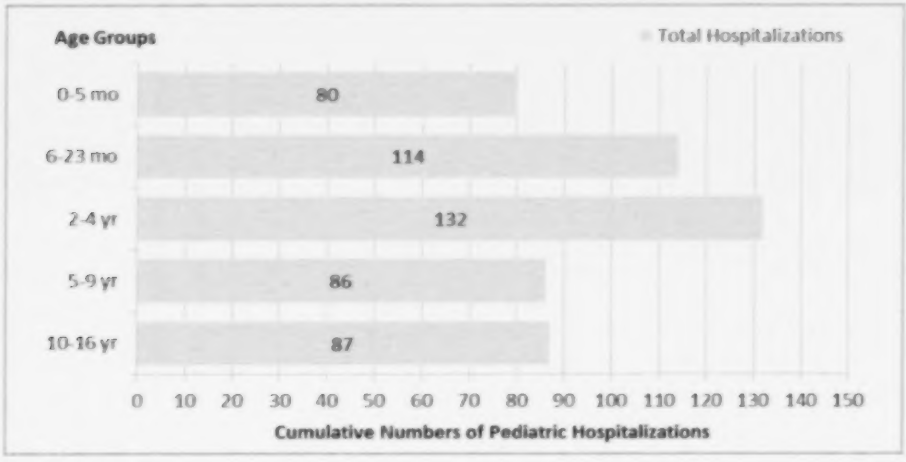
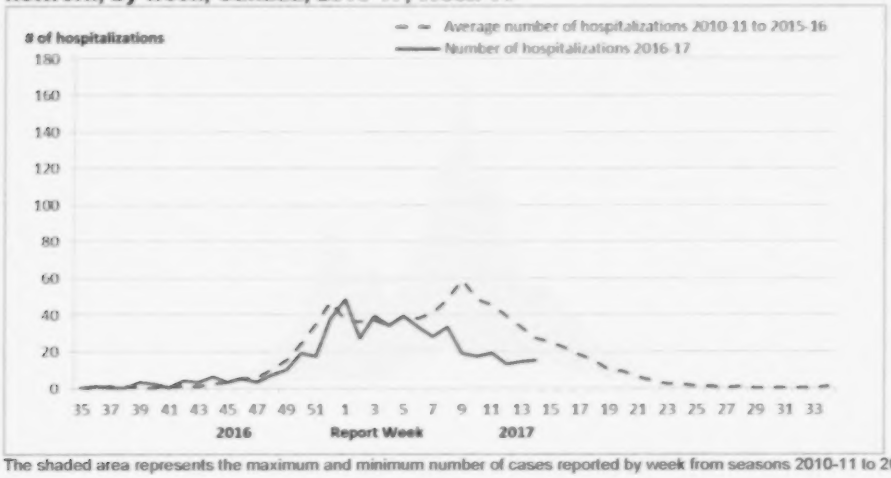


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 14



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 14, 26 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). The proportion of influenza B hospitalizations increased in week 14 and accounted for 42% of all weekly hospitalizations. The majority of cases (73%) occurred in adults aged 65+.

To date this season, 1,370 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. Influenza A accounted for 95% of hospitalizations. Adults aged 65+ accounted for 79% of hospitalizations. To date, 93 intensive care unit (ICU) admissions have been reported. A total of 69 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 69 years. Approximately 62 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 85 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 14

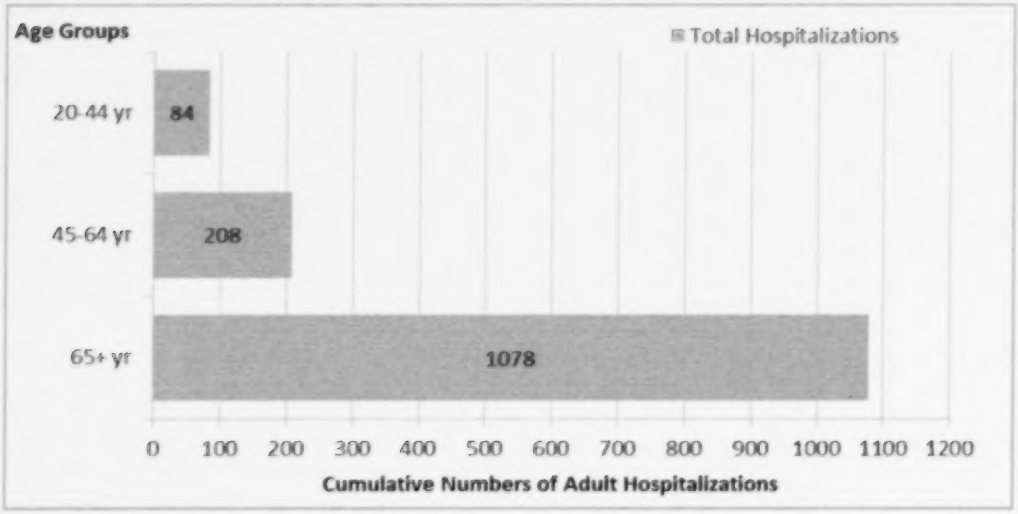
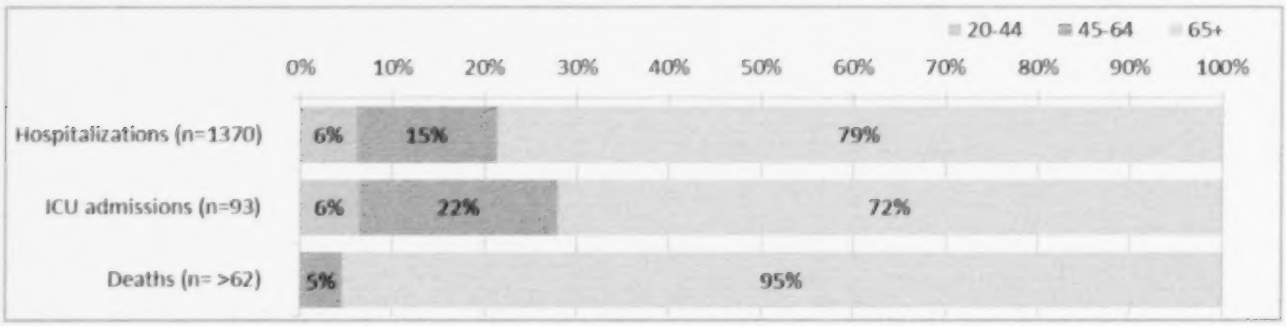


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 14



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 1,644 influenza viruses [1419 A(H3N2), 36 A(H1N1), 189 influenza B]. All but one influenza A virus (n=1418) and 46 influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. One hundred and forty-three influenza B viruses were similar to the strain which is only included in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 14

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	346	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	1072	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 346 influenza A (H3N2) viruses that underwent HI testing determined that 285 viruses belonged to genetic group 3C.2a and 61 viruses belonged to genetic group 3C.3a. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	36	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	46	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	143	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1]The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2]Determined by sequence analysis
[3]WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season
[4]Detected in epidemiological week 50. For more details, see Week 50 report

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 886 influenza viruses for resistance to oseltamivir, 884 influenza viruses for resistance to zanamivir and 208 influenza viruses for resistance to amantadine. All but two influenza A(H3N2) viruses were sensitive to oseltamivir and all viruses were sensitive to zanamivir. All 187 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 14

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	699	2 (0.3%)	697	0 (0%)	178	178 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	34	0 (0%)	33	0 (0%)	29	29 (100%)
B	152	0 (0%)	153	0 (0%)	NA[1]	NA[1]
TOTAL	886	2 (0.2%)	884	0 (0%)	208	208 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.